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New research offers insight into brain trauma incurred by improvised explosive devices (IED), a problem affecting survivors of blast-related injuries since World War I. These findings mark the first time modern pathology was used to examine long-lasting effects of explosions on the brain.[1,2]

Individuals suffering brain damage from IED explosions experience cognitive and psychological difficulties. Previously known as shell shock, this concept is called blast neurotrauma or blast injury to brain. Recently, the problem resurfaced as a health concern in the United States, as soldiers return from deployments in Iraq and Afghanistan.[3]

Eight researchers from the Johns Hopkins University School of Medicine in Baltimore, Maryland, (United States), studied the brains of five male U.S. military veterans who survived IED attacks and later died. The research data showed a distinctive brain pattern, which differs from that of brain damage caused by car crashes, drug overdoses and collision sports. The broken and swollen nerve fibers of IED-blast victims resemble a honeycomb pattern, and are found throughout critical brain regions including the frontal lobes, which control decision-making, memory, reasoning and other functions. This may explain some of the difficulties IED survivors face, such as depression, anxiety and post-traumatic stress.[1,3]

According to researchers, these new findings "may be the never-before-reported signature of blast injuries," which soldiers suffer. Researchers did not observe the honeycomb pattern in any other type of brain injury.[3]

This discovery will help doctors more effectively treat IED survivors. Although a fundamental step toward understanding how IED blasts affect the brain, more research is needed to determine the impact over time.[2,3]

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~ Julie Stern, CISR staff